

Energy Efficiency: A New Beginning



ENERGY\$OLUTIONS.

FOR THE HOME

Hawaiian Electric • *Giving you the power*

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Energy \$olutions for the Home



Overview

- Energy\$olutions for business rebate program
- Over \$80 million in energy efficiency improvements
- Savings of over \$600 million
- \$18 million in rebates & incentives



Qualifying Technologies

Lighting Standard Rebates

Existing



T8 (Incentives Doubled 5/06)

Reflectors with De-Lamping

Occupancy Sensors

Indoor Metal Halide/High Pressure Sodium Fixtures



New

CFL

Super T8

De-Lamping w/o Reflectors

T5 & T5HO

LED Exit Signs

Induction Lights

Pulse Start – Metal Halides



Compact Fluorescent Lights

All New



CFL	Existing	New Construction
Screw In	\$ 5	\$2.50
Reflector	\$10	\$5
Dimmable	\$10	\$5
Cold Cathode	\$10	\$5
Pin Mount	\$10	\$5



Recommended



Super T8 Lamps

<u>Measure</u>	<u>existing</u>	<u>new construction</u>
T12 to super T8	\$8.40	none
T8 to super T8	\$5.60	none
Super T8 (NC)	none	\$4.80

All New



De-lamping W/o Reflectors

<u>Lamps removed</u>	<u>existing</u>	<u>new construction</u>
2' lamps	\$2.50	none
3' lamps	\$5.00	none
4' lamps	\$7.50	none

All New



T5 Fluorescent & High Output T5 Fluorescent

All New

Type of T5 installed	existing	new construction
2' t5	\$7.20	\$3.90
3' t5	\$7.80	\$4.35
4' t5	\$8.40	\$4.80
2' t5ho	\$12.00	\$6.50
3' t5ho	\$13.00	\$7.25
4' t5ho	\$14.00	\$8.00



Induction Lighting Systems



Lamps wattage	existing	new construction
< 100 watt	\$45	\$25
100 or greater	\$60	\$35

All New



Pulse Start – Metal Halide

<u>Lamp wattage</u>	<u>existing</u>	<u>new construction</u>
< 100 watt	\$45	\$25
100 – 200 watt	\$60	\$35
> 200 watt	\$85	\$50

All New



LED Exit Signs



<u>Measure</u>	<u>Existing</u>	<u>New Construction</u>
Exit Sign (LED)	\$25	None

All New



[illegible]

Equipment Type	Louvered Sides	Cooling Capacity		Qualifying Efficiency	Rebate Efficiency	Equipment Rebate
		(Btuh)	Tons	ENERGY STAR (EER)	(per unit Eff. over qualifying Eff.)	(per 12,000 Btuh or per ton)
Room (Window) Air Conditioner	Yes	Less than 8,000	Less than 0.666	10.7	\$ 50	\$ 70
	Yes	8,000 to 13,999	0.666 to 1.166	10.8	\$ 50	\$ 70
	Yes	14,000 to 19,999	1.167 to 1.667	10.7	\$ 50	\$ 70
	Yes	Over 20,000	Over 1.667	9.4	\$ 50	\$ 70
Room (Window) Air Conditioner	No	Less than 8,000	Less than 0.666	9.9	\$ 50	\$ 70
	No	Over 8,000+	0.666 & 1.166+	9.4	\$ 50	\$ 70
Casement - Only		Any Capacity	Any Capacity	9.6	\$ 50	\$ 70
Casement - Slider		Any Capacity	Any Capacity	10.5	\$ 50	\$ 70

Packaged & Split Systems

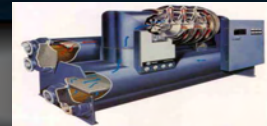
- Packaged units, split systems, and water or evaporative cooled (water source heat pumps)
- Full load SEER or EER

**Rebate
Doubled!**



PACKAGED AND SPLIT SYSTEMS QUALIFYING EFFICIENCIES AND REBATE TABLE				
Cooling Method	System Type	System Cooling Capacity		B
		(MBtu/h)	(tons)	Qualifying System Efficiency at Full Load (SEER or EER)
Air Cooled	Unitary Package or Split System	Less than 65	Less than 5.42	13.0 SEER
		65 to 135	5.42 to 11.25	11.0 EER
		136 to 240	11.26 to 20	10.8 EER
		Over 240	Over 20	10.0 EER
Water or Evaporatively Cooled	Unitary, Split, or Water Source Heat Pumps In Cooling Mode	Less than 65	Less than 5.42	14 EER
		65 to 135	5.42 to 11.25	14 EER
		Over 135	Over 11.25	14 EER

Chillers Rebate

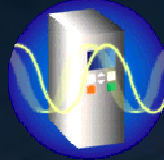


- Compressor
 - Centrifugal, rotary screw, scroll, reciprocating
- Integrated part load value (IPLV)
 - Variable frequency drive (VFD)

CHILLERS QUALIFYING EFFICIENCIES AND REBATE TABLE		
Chiller Compressor	Cooling Capacity ² (tons)	A
		Qualifying IPLV Efficiency (kW/ton)
Centrifugal, Rotary Screw, Scroll, & Reciprocating	Less than 150	0.70
	150 to 225	0.63
	226 to 300	0.55
	Over 300	0.50

HVAC Variable Frequency Drives

- Variable frequency drives (VFDs)
 - Air handling units
 - Cooling towers
 - Chilled water pumps
 - Condenser water pumps
 - Fans = \$50/HP (E or NC, HP size)
 - Pumps = \$80/HP (E or NC, HP size)

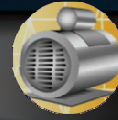


Booster Pumps, Window Film

- Booster pumps (existing facilities)
 - New system is more energy efficient existing, e.G. VFDs
- Window film (existing facilities)
 - Shading coefficient of 0.40 or less
 - 35 cents/sq. Ft.



Motors Rebate



- Motors
 - NEMA premium efficient
 - Motor rebate table



POLYPHASE MOTOR QUALIFYING EFFICIENCIES AND REBATE TABLE								NOTES
Size: (hp)	2 Pole 3600 RPM		4 Pole 1800 RPM		6 Pole 1200 RPM		Rebate per Motor	Rebate levels subject to change
	ODP	TEFC	ODP	TEFC	ODP	TEFC		
1	77.0	77.0	85.5	85.5	82.5	82.5	\$15	* For a specialized motor that is not listed on the rebate table, an applicant may submit specifications on a selected motor. HECO will consider these situations on a case-by-case basis to determine if a particular motor can qualify for a rebate.
1.5	84.0	84.0	86.5	86.5	86.5	87.5	\$22.50	
2	85.5	85.5	86.5	86.5	87.5	88.5	\$30	
3	85.5	86.5	89.5	89.5	88.5	89.5	\$45	
5	86.5	88.5	89.5	89.5	89.5	89.5	\$50	
7.5	88.5	89.5	91.0	91.7	90.2	91.0	\$75	
10	89.5	90.2	91.7	91.7	91.7	91.0	\$100	
15	90.2	91.0	93.0	92.4	91.7	91.7	\$120	
20	91.0	91.0	93.0	93.0	92.4	91.7	\$180	
25	91.7	91.7	93.6	93.6	93.0	93.0	\$200	
30	91.7	91.7	94.1	93.6	93.6	93.0	\$210	
40	92.4	92.4	94.1	94.1	94.1	94.1	\$240	
50	93.0	93.0	94.5	94.5	94.1	94.1	\$300	
60	93.6	93.6	95.0	95.0	94.5	94.5	\$360	
75	93.6	93.6	95.0	95.4	94.5	94.5	\$450	
100	93.6	94.1	95.4	95.4	95.0	95.0	\$600	
								Abbreviations ODP - Open Drip Proof TEFC - Totally Enclosed Fan Cooled NEMA - National Electrical Manufacturers Association



Custom Rebates



Existing Facilities

New Construction



Example Custom Projects

- LED lighting
- Energy management systems
- Solar water heating
- CO2 sensors
- Exhaust fan controls
- Industrial/manufacturing equipment



Custom Incentive Program

Customized Incentive Levels

	Existing Facilities	New Construction
Energy Savings (kWh) ¹	\$0.05 per kWh saved	\$0.06 per kWh saved
Peak Demand Savings (kW) ²	\$125 per kW reduced	

¹ kWh savings are based on estimated first year savings only

² kW savings must normally occur during HECO's peak demand period (5:00 p.m. to 9:00 p.m. weekdays)

Incentive Levels are Subject to Change

Customized Incentives Guidelines

- Prior notification is required (pre/post monitoring)
- Submit application & proposal
- Pass utility's benefit-cost test to meet state regulatory requirements
- Payback > 1 year
- An independent engineer may be hired to verify estimated savings (incentives > \$25k)



Technical Resources

- Energy Services Representative
- Professional Engineers and Consulting Communities
- HEA
- HECO.com



New Programs

- Residential energy solutions for the home
 - CFLs, high efficiency appliances
- Residential low income
 - CFLs, high efficiency water heating



Our Programs

THE DEAL JUST GOT
HOTTER!

- Existing Rebate Programs
 - Solar Water Heating System
 - High Efficiency Water Heaters
- New Construction Rebate Programs
 - Solar Water Heating System
 - High Efficiency Water Heaters
 - Tank and Timer
 - BuiltGreen (new)



Solar Water Heating in Hawaii

- Excellent year-round solar resource
- Over 75,000 solar systems statewide
- Over 52,000 on Oahu alone
- Highest per capital number of systems in the nation
- About 1 in every 5 homes has solar
- Solar acceptance is widespread



Financial Benefits of Solar

- HECO instant rebate of \$1,000
- Save \$5-\$10 per person per month on electric bill
- Receive up to \$2,250 in State tax credits
- Receive up to \$2,000 in Federal Tax credits



Tank and Timer



- New Construction Only
- Installed on 80-gallon High Efficiency Water Heaters
- HECO provided Timer with factory settings
- Developers get \$270 per unit installed
- Home owners get \$5 per month credit on their HECO bill



High Efficiency Water Heaters

- | | |
|--------------------------------|-------------|
| • 35 gallon tank or less | .94 ef \$60 |
| • 36 – 45 gallon tank..... | .93 ef \$60 |
| • 46 - 64 gallon tank..... | .92 ef \$80 |
| • 65 gallon tank..... | .91 ef \$80 |
| • 66 – 118 gallon tank..... | .88 ef \$80 |
| • 119 gallon or greater tank | .83 ef \$80 |

Rebates shown are provided to home builders.

Call 94-POWER (947-6937) for information on rebates for existing homes.



Green Homes Incentive Package

- Recently approved by the PUC for residential new construction (single or multi-family units)
- Graduated levels of bundled energy efficiency measures installed as standard on new homes
- Compliance inspected and verified
- Rebates available for homes constructed on or after 2/13/07



Green Homes Matrix

Efficiency Measure per Unit	Gold-Plus	Gold	Silver	Bronze
Central Air Conditioning	None. Natural Ventilation	SEER 13	SEER13	SEER 13
ENERGY STAR Ceiling Fans	4	4	4	4
ENERGY STAR (CFLs)*	3	3	3	3
ENERGY STAR Clothes Washer	Yes	Yes	Yes	-
ENERGY STAR Refrigerator	Yes	Yes	Yes	-
Wall Insulation	R-15	R-15	R-15	-
Ceiling Insulation	R-25	R-25	R-25	-
Skylights (1 or more)	SHGC<0.5	SHGC<0.5	SHGC<0.5	-
ENERGY STAR Windows	Double-Pane (SHGC≤0.29)	Double-Pane (SHGC≤0.29)	-	-
Rebate Amount/Dwelling	\$1,340	\$785	\$585	\$270

* CFL is abbreviated for Compact Florescent Light



Residential Program



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FOR THE HOME

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Energy \$olutions for the Home

- Energy Star
 - CFLs
 - Ceiling Fans
 - Window Air Conditioners
 - Split Air Conditioners
 - Washing Machines
 - Dish Washers
 - Refrigerators
- Central Air Conditioning Servicing



Compact Fluorescent Lights

- \$1 Standard CFL



Compact Fluorescent Lights

- \$3 Specialty CFLs



Participating Retail Locations

106 Retail locations



Compact Fluorescent Lights

- \$ 5 Dimmable CFLs

Coming Soon !



Ceiling Fans



Window Air Conditioners



Split Air Conditioner System



Washing Machines



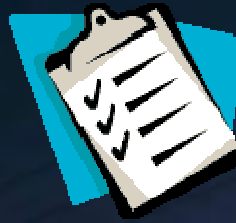
Dishwashers



Refrigerator



Central Air Conditioner Servicing



Residential Low Income

- Working with Non Profits to reach this demographic group to install energy saving equipments.



EnergyScout Programs



Commercial & Residential Load Control Programs



EnergyScout Programs

HECO launched 2 new programs in 2005 aimed at improving system reliability during generation emergency conditions.

1. **EnergyScout for Business**
2. **EnergyScout for Homes**



EnergyScout Programs

- Provides cash incentives to participating customers.
- Customer elects which facility loads are enlisted in program.
- Customer curtails enlisted loads during island-wide power emergencies.



EnergyScout Program Incentives

EnergyScout for Business

- \$12,000/yr - \$600,000/yr
- 7 Commercial Customers enrolled
- 4 MW of curtailable loads
- \$322,000 incentives paid

EnergyScout for Homes

- \$3 per month
- 19,000 Residential Customers enrolled
- 12 MW of curtailable loads
- \$450,000 incentives paid



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HAWAII CONFERENCE & EXPO

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...Tomorrow's Independence



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AT THE
**GRAND WAILEA
RESORT**
WAILEA, MAUI
SEPTEMBER 6 - 8, 2007

EARLY BIRD REGISTRATION DEADLINE IS JULY 6!
EARLY BIRD REGISTRATION \$285. SPECIAL CONFERENCE RESORT
ROOM RATE \$225 PER NIGHT. MORE INFORMATION TO COME IN JUNE!

**MARK YOUR
CALENDARS!**

